

CLAIMS

We claim:

1. A book encoded for optical page identification, the book comprising:
a plurality of successive page spreads defined by a plurality of pages;
5 a first sequence of page identifiers, each identifier of the first sequence being associated with a first corresponding page spread of the plurality of successive page spreads, the first sequence comprising overlayable arrangements of adjoining open-hole and closed-hole locations, each successive arrangement of the first sequence decreasing in a first total number of open-hole locations by at least one open-hole location; and
10 a second sequence of page identifiers, each identifier of the second sequence being associated with a second corresponding page spread of the plurality of successive page spreads, the second sequence comprising overlayable arrangements of adjoining open-hole and closed-hole locations, each successive arrangement of the second sequence increasing in a second total number of open-hole locations by at least one open-hole location.
- 15 2. The book according to claim 1, wherein each page spread of the plurality of successive page spreads has a first corresponding page and a second corresponding page;
each arrangement of the first sequence of page identifiers, has at least one closed-hole location on the first corresponding page of the first corresponding page spread, the at least one closed-hole location having a first optical reflectance detectably different than a second optical
20 reflectance of a first area adjacent the at least one closed-hole location; and
each arrangement of the second sequence of page identifiers has at least one closed-hole location on the second corresponding page of the second corresponding page spread, the at least one closed-hole location having a third optical reflectance detectably different than a fourth optical reflectance of a second area adjacent the at least one closed-hole location.
- 25 3. The book according to claim 1 wherein each open hole location is located on a page of the plurality of pages and is defined by a closed perimeter opening through the page.
4. The book according to claim 1 wherein each open hole location is located on a page of the plurality of pages and is defined by a cutout extending inwardly from a proximal free edge of the page.

5. The book according to claim 1 wherein multiple open hole locations located adjacently on at least one page of the plurality of pages are defined by a single elongated opening through the one page proximal a free edge of the one page.

6. The book according to claim 5 wherein the single elongated opening is an elongated cutout into a free edge of the page.

7. The book according to claim 5 wherein the single elongated opening is an elongated, closed perimeter slot.

8. The book according to claim 1 wherein each open hole location of each page of the plurality of pages is defined by at least part of an opening in the page proximal a free edge of the page.

9. A book encoded for optical page identification, the book comprising:
a plurality of successive page spreads, each page spread having a first corresponding page and a second corresponding page;
a first sequence of page identifiers, each identifier of the first sequence being associated with a first corresponding page spread of the plurality of successive page spreads, the first sequence comprising overlayable arrangements of adjoining open-hole and closed-hole locations, each arrangement of the first sequence having at least one closed-hole location on the first page of the first corresponding page spread, the at least one closed-hole location having a first optical reflectance detectably different than a second optical reflectance of a first area adjacent the at least one closed-hole location; and

a second sequence of page identifiers, each identifier of the second sequence being associated with a second corresponding page spread of the plurality of successive page spreads, the second sequence comprising overlayable arrangements of adjoining open-hole and closed-hole locations, each arrangement of the second sequence having at least one closed-hole location on the second corresponding page of the second corresponding page spread, the at least one closed-hole location having a third optical reflectance detectably different than a fourth optical reflectance of a second area adjacent the at least one closed-hole location.

10. The book according to claim 9, wherein each successive arrangement of the first sequence decreases in a first total number of open-hole locations by at least one open-hole location; and

each successive arrangement of the second sequence increases in a second total number of open-hole locations by at least one open-hole location.

11. An electronic learning device for receiving a book having a plurality of successive page spreads, at least one page spread having selectable content and an optically readable page identifier, the device comprising:

a housing configured to receive the book;

a position sensor in the housing, the position sensor configured to determine the location of the selectable content on the at least one page spread;

an optical sensor in the housing, the optical sensor configured to irradiate and detect the page identifier on the at least one page spread;

control electronics in the housing, the control electronics operatively coupled to the optical sensor and to the position sensor, the control electronics configured to synchronize operation of the position sensor and the optical sensor.

12. The device according to claim 11, wherein the position sensor comprises a plurality of at least touch-responsive, mutually adjoining sensors organized in a two-dimensional array, the array being formed by separate and separated first and second sets of generally parallel, individual conductive lines transversely crossing over each other beneath an upper surface of the housing, a radio frequency oscillating signal generator cyclically coupled to individual conductive lines of the first set; and a synchronous detection circuit operatively coupled with the generator and with individual conductive lines of the second set to identify user selected individual cross-points of the first and second sets of lines of the array.

13. The device according to claim 11 wherein the optical sensor comprises an array of optical emitter and optical detector pairs, a radio frequency oscillating signal generator cyclically coupled to each individual optical emitter, and a synchronous detection circuit operatively coupled with the optical detectors.

14. The device according to claim 11 wherein the position sensor comprises a plurality of at least touch-responsive, mutually adjoining sensors organized in a two-dimensional array, the array being formed by separate and separated first and second sets of generally parallel, individual conductive lines transversely crossing over each other beneath an upper surface of the housing, a radio frequency oscillating signal generator cyclically coupled to individual conductive lines of the

first set; and a synchronous detection circuit operatively coupled with the generator and with individual conductive lines of the second set to identify user selected individual cross-points of the first and second sets of lines of the array; and

- 5 the optical sensor comprises a plurality of optical emitter and optical detector pairs controlled and synchronized with the operation of the position sensor by an optical switch and gate under the control of the control electronics in the housing.